

I claim:

Sub B1 1. A method comprising:

2 providing a moldable sheath with sufficient moldability to at least temporarily

3 retain a specific shape imparted to it when implanted in a body cavity;

4 implanting said sheath within a body cavity;

5 molding said implanted sheath to said specific shape, which specific shape is

6 held without continued assistance of a shaping tool; and

7 utilizing said implanted sheath for a medical procedure.

1 2. An apparatus comprising:

2 a moldable sheath with sufficient moldability at body temperatures to at least

3 temporarily retain a specific shape imparted to it; and

4 a lumen defined in said moldable sheath.

1 3. The apparatus of claim 2 further comprising a shaping tool for disposition

2 in said lumen of said implanted sheath to impart said specific shape to said sheath.

1 4. The apparatus of claim 3 where said shaping tool is separate from said

2 sheath.

1 5. The apparatus of claim 2 where said shaping tool is incorporated within
2 said sheath.

1 6. The apparatus of claim 2 further comprising a sealing valve coupled to
2 said sheath to seal said lumen.

1 7. The apparatus of claim 2 further comprising a diagnostic or therapeutic
2 device coupled to said sheath. 

1 8. The apparatus of claim 2 where said sheath has at least one portion with a
2 stiffness different than remaining portions of said sheath.

1 9. The apparatus of claim 2 where said sheath has at least one portion with a
2 moldability different than remaining portions of said sheath.

1 10. The apparatus of claim 2 where said sheath is deployed in a body cavity
2 and has at least one portion with a moldability which can be altered at the time of
3 implantation in said body cavity.

1 11 The apparatus of claim 10 where said at least one portion has its
2 moldability altered before said sheath is implanted into said body cavity.

12. The apparatus of claim 10 where said at least one portion has its
moldability altered after said sheath is implanted into said body cavity.

- 1 13. A method comprising:
 - 2 providing a moldable sheath capable of at least temporarily retaining a specific
 - 3 shape imparted to it when implanted in a body cavity;
 - 4 implanting said sheath within a body cavity;
 - 5 molding said implanted sheath to said specific shape while within said body
 - 6 cavity, which specific shape is held without continued assistance of a shaping tool; and
 - 7 utilizing said implanted sheath for a medical procedure within said body cavity
 - 8 while said sheath is in said specific shape.

1 14. The method of claim 13 where molding said implanted sheath to a specific
2 shape comprising applying a shaping tool to said sheath to induce said sheath to
3 assume said specific shape.

1 15. The method of claim 13 further comprising removing a shaping tool from
2 said sheath when said sheath is characterized by a sufficient moldability so that removal
3 of said shaping tool does not result in any substantial displacement of said sheath from
4 said specific shape.

1 16. The method of claim 14 where applying a shaping tool to said sheath
2 comprises telescopically disposing said shaping tool within a lumen in said sheath.

1 17. The method of claim 14 where applying a shaping tool to said sheath
2 comprises manipulating said shaping tool to steer said sheath.

1 18. The method of claim 14 where applying a shaping tool to said sheath
2 comprises disposing said shaping tool exteriorly to said sheath and imposing a shaping
3 force thereon.

1 19. The method of claim 13 where utilizing said implanted sheath for a
2 medical procedure comprises disposing a medical instrument in said body cavity.

1 20. The method of claim 13 where utilizing said implanted sheath for a
2 medical procedure comprises performing a diagnostic procedure within said body
3 cavity.

1 21. The method of claim 13 where utilizing said implanted sheath for a
2 medical procedure comprises performing a therapeutic procedure within said body
3 cavity.

1 22. The method of claim 13 where utilizing said implanted sheath for a
2 medical procedure comprises disposing a cardiac lead in the coronary sinus of a human
3 heart.

1 23. The method of claim 13 wherein said sheath has a moldability and further
2 comprising changing said moldability of at least a portion of said sheath.

1 24. The method of claim 23 where providing a moldable sheath comprises
2 providing a sheath having a moldability dependant on temperature and where changing
3 said moldability of said sheath while in said body cavity comprises exposing at least a
4 portion of said sheath to a body cavity temperature elevated above ambient
5 temperature.

1 25. The method of claim 23 where providing a moldable sheath comprises
2 providing a sheath having a moldability dependant on moisture and where changing
3 said moldability of said sheath while in said body cavity comprises exposing at least a
4 portion of said sheath to moisture.

1 26. The method of claim 23 where changing said moldability of said sheath
2 comprises causing a change of said moldability of said sheath by treating at least a
3 portion of said sheath exterior to said body cavity prior to implanting.

1 27. The method of claim 26 where treating said sheath exterior to said body
2 cavity prior to implanting to change its moldability comprises exposing at least a portion
3 of said sheath to radiation.

1 28. The method of claim 26 where treating said sheath exterior to said body
2 cavity prior to implanting to change its moldability comprises exposing at least a portion
3 of said sheath to a chemical treatment.

1 29. An apparatus comprising:

2 a moldable sheath capable of at least temporarily retaining a specific shape

3 imparted to it; and

4 a shaping tool arranged and configured to be applied to said implanted sheath to

5 impart said specific shape to said sheath while within said body cavity, which specific

6 shape is held without continued assistance of said shaping tool.

1 30. The apparatus of claim 29 where said sheath is characterized by a
2 sufficient moldability so that removal of said shaping tool does not result in any
3 substantial displacement of said sheath from said specific shape.

1 31. The apparatus of claim 29 where said sheath has a lumen and where said
2 shaping tool applied to said sheath comprises an elongate shaping tool which is
3 telescopically disposed within said lumen in said sheath.

1 32. The apparatus of claim 29 where said shaping tool applied to said sheath
2 comprises a shaping tool applied exteriorly to said sheath and imposing a shaping force
3 thereon.

1 33. The apparatus of claim 29 further comprising a medical instrument
2 disposed into said body cavity through said sheath.

1 34. The apparatus of claim 29 where medical instrument comprises a
2 diagnostic instrument.

1 35. The apparatus of claim 29 where said medical instrument comprises a
2 therapeutic instrument.

1 36. The apparatus of claim 29 where said medical instrument comprises a
2 cardiac lead for disposition within the coronary sinus of a human heart.

1 37. The apparatus of claim 29 where said moldable sheath has at least a
2 portion of changed moldability relative to remaining portions of said sheath.

1 38. The apparatus of claim 37 where said portion which changes its
2 moldability while in said body cavity comprises at least a portion of said sheath having a

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- 3 moldability dependant on temperature in which said moldability of said sheath is
- 4 changed while in said body cavity and exposed to a body cavity temperature elevated
- 5 above ambient temperature.

1 39. The apparatus of claim 38 where said portion which changes its memory
2 shape while in said body cavity comprises at least a portion having a moldability
3 dependant on moisture in which said moldability of said sheath is changed while in said
4 body cavity and exposed to moisture.

1 40. The apparatus of claim 37 where said portion of changed moldability has
2 its moldability changed by treating at least a portion of said sheath exterior to said body
3 cavity prior to implanting.

1 41. The apparatus of claim 40 where said portion of changed moldability has
2 its moldability changed by exposing at least a portion of said sheath to radiation.

1 42. The apparatus of claim 40 where said portion of changed moldability has
2 its moldability changed by exposing at least a portion of said sheath to a chemical
3 treatment.

1 43. The apparatus of claim 29 further comprising a reinforcement selectively
2 disposed on or in said sheath so that a reinforced portion of said sheath has its stiffness
3 increased relative to remaining portions of said sheath.

1 44. The apparatus of claim 29 further comprising a reinforcement selectively
2 disposed on or in said sheath so that a reinforced portion of said sheath has its ability to
3 retain a specific shape enhanced relative to remaining portions of said sheath.

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1 45. The apparatus of claim 44 where said reinforcement comprises wires,
2 fibers or braid disposed on or in said sheath.

1 46. The apparatus of claim 43 where said reinforcement comprises a braided
2 reinforcement on or in said sheath.

1 47. The apparatus of claim 43 where said reinforcement comprises fibers
2 disposed on or in said sheath to provide kink resistance.

1 48. The apparatus of claim 43 where said reinforcement comprises at least
2 one layer of material at least partially concentrically disposed on or in said sheath.

1 49. The apparatus of claim 48 where said at least one layer of material at
2 least partially concentrically disposed on or in said sheath comprises at least one
3 cylindrical layer telescopically disposed on or in said sheath.

1 50. The apparatus of claim 48 where said sheath has a wall with a
2 predetermined thickness and where said at least one layer of material at least partially
3 concentrically disposed on or in said sheath comprises a thickening of said sheath wall.

1 51. The apparatus of claim 48 where said one layer of material has a
2 moldability different than said sheath.

1 52. The apparatus of claim 48 where said one layer of material is not
2 moldable like said sheath.

1 53. The apparatus of claim 29 where said moldable sheath has a tip portion
2 and where said tip portion is substantially soft and compliant without appreciable
3 moldability.

1 54. The apparatus of claim 29 where said moldable sheath is splittable,
2 tearable, slittable or peelable.

1 55. The apparatus of claim 29 where said moldable sheath is preshaped
2 according to its intended application within said body cavity.

1 56. The apparatus of claim 29 where said sheath has a proximal end and
2 further comprising a sealing valve disposed on said proximal end.

1 57. The apparatus of claim 56 where said sealing valve is splittable, tearable,
2 slittable or peelable.

1 58. The apparatus of claim 56 where said sealing valve is integral with said
2 sheath.

1 59. The apparatus of claim 56 where said sealing valve is separate from said
2 sheath.

1 60. The apparatus of claim 29 further comprising at least one wire disposed in
2 said sheath and usable for deflecting and positioning said sheath.

1 61. The apparatus of claim 29 further comprising at least one wire disposed in
2 said sheath for providing an electrical conductor therein.

1 62. The apparatus of claim 61 where said sheath has a distal end and further
2 comprising a diagnostic or therapeutic device at or near said distal end and coupled to
3 said conductor.

1 63. The apparatus of claim 62 where said diagnostic or therapeutic device
2 comprises an ultrasound imager.

1 64. The apparatus of claim 29 further comprising a lumen defined in said
2 sheath and at least one inflatable balloon disposed on said sheath coupled to said
3 balloon.

1 65. The apparatus of claim 64 where said balloon is removable from said
2 sheath.

1 66. The apparatus of claim 61 further comprising an electrode disposed on or
2 in said sheath and coupled to said conductor.

1 67. The apparatus of claim 29 further comprising at least one optic fiber
2 disposed in said sheath for providing an optical conductor therein.

1 68. The apparatus of claim 67 where said sheath has a distal end and further
2 comprising a photonic device disposed in or near said distal end of said sheath and
3 coupled to said optic fiber.

1 69. The apparatus of claim 29 further comprising a lumen defined in said
2 sheath and a vent communicated to said lumen so that fluid may be infused or
3 suctioned therethrough.

1 70. The apparatus of claim 29 where said shaping tool is steerable.

1 71. The apparatus of claim 29 where said shaping tool comprises a guidewire.

1 72. The apparatus of claim 29 where said shaping tool has a tip portion which
2 is substantially soft and compliant without substantial moldability rendering it
3 nontraumatic.

1 73. The apparatus of claim 29 where said shaping tool further comprises at
2 least one lumen defined therethrough and a vent communicated with said lumen.

1 74. The apparatus of claim 29 where said shaping tool further comprises a
2 lumen defined therethrough and at least one inflatable balloon communicated with said
3 lumen.

1 75. The apparatus of claim 29 where said shaping tool further comprises a
2 conductor disposed therethrough and an electrode coupled to said conductor for
3 sensing or delivery of energy from said electrode.

1 76. An apparatus comprising:
2 a peel-away sheath with sufficient flexibility to be selectively guideable; and
3 a steering or guiding tool to impart a selected shape to said sheath.

1 77. The apparatus of claim 76 where said peel-away sheath is nonmoldable.

1 78. The apparatus of claim 76 further comprising a proximal sealing valve
2 coupled to said sheath.

1 79. The apparatus of claim 76 further comprising a distal diagnostic or
2 therapeutic device coupled to said sheath.

1 80. The apparatus of claim 76 where said peel-away sheath separates along
2 a longitudinally oriented score line defined in said peel-away sheath.

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1 81. An apparatus comprising:
2 a peel-away sheath with sufficient flexibility to be selectively guideable including
3 an elongated flexible body having a proximal end and a distal end; and
4 a peel-away balloon mounted on said flexible body near said distal end thereof.

1 82. An apparatus comprising:
2 a moldable, peel-away sheath with sufficient flexibility to be selectively guideable;
3 and
4 a dilator telescopically disposable with said sheath so that said sheath may be
5 vascularly implanted.

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